

**FAST FOURIER TRANSFORM PROCESSORS, METHODS AND  
ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING RECEIVERS  
INCLUDING MEMORY BANKS**

**Abstract of the Disclosure**

A signal converter having a memory bank and radix-2 Fast Fourier Transform (FFT) transforms an Orthogonal Frequency Division Multiplexing (OFDM) signal having a long preamble and data into an OFDM signal in the frequency domain, and  
5 outputs the transformed OFDM signal. The radix-2 FFT has a linear systolic array architecture, transforms the long preamble stored in the memory bank by FFT, then stores the transformed long preamble into the memory bank, transforms data input through a buffering process and data input directly by FFT, and stores the transformed data in the memory bank. The memory bank has four memories, stores the long  
10 preamble transformed or not transformed and outputs the stored long preambles or the transformed data for the purpose of demodulation as the transformed data is input. Data-processing delay and/or power consumption may be reduced during the operation of the FFT processor.